TARGET AUDIENCE: Readiness, EOD, Firefighters, and Prime BEEF Personnel

AFCESA A-GRAM
AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

99-16

DEPLETED URANIUM (DU) AWARENESS

MARCH 1999

BACKGROUND:

DU hazard awareness training is currently a high-profile issue throughout the Department of Defense. A board investigating issues related to Gulf War Illness found that service members are generally unaware of hazards associated with DU, especially precautions to be taken with battle damaged equipment. HQ USAF/ILEOR has tasked Readiness Flights throughout the Air Force to incorporate DU awareness training into Nuclear Biological Chemical (NBC) Defense Courses.

C-141 Mishap

WHAT IS DU?

DU is an extremely dense radio-active metal that has a multitude of military uses, such as protective shielding in armored vehicles and munitions designed to penetrate heavy armor.

DU is the uranium remaining after most radioactive isotopes have been removed to enrich other natural uranium for use as nuclear fuel or in nuclear weapons. Depleted uranium is 40% less radioactive than natural uranium. ***Natural uranium*** is all around us--in the air and soil, in the

food we eat and the water we drink, so in many cases DU is less radioactive than naturally-occurring background radiation.

WHERE MIGHT AIR FORCE PEOPLE ENCOUNTER DU?

The Air Force primarily uses DU in aircraft counterbalances (C-5, C-141, etc.) and in 30 mm armor piercing incendiary GAU-8 munitions. Products manufactured with DU are painted to encapsulate the hazard. Exposure to DU may occur anytime there is damage to a DU package or when an item (such as a vehicle) is hit with a DU munition.

WHAT HAZARDS ARE ASSOCIATED WITH DU?

When a 30mm DU round or aircraft counterbalance is intact with all exposed DU surfaces properly painted, it poses little or no hazard. If broken apart as a result of an accident, the DU is exposed. DU presents a radiological hazard from both external and internal exposure. Externally, DU and its decay products emit beta and gamma/x-ray radiation which can serve as sources of external radiation for personnel. Internally, insoluble DU oxide can be inhaled and deposited into the lungs where irradiation by alpha particles is the primary concern.

Soluble forms of DU can present a significant hazard. Like any heavy metal, DU ingested or inhaled into the body subsequently enters the blood stream and can be toxic to the kidneys and other organs.

DU PROTECTION:

- Minimize contact and, if possible, do not come in contact with unencapsulated DU.
- Do not inhale unencapsulated DU. Wear a protective mask when you are around an incident involving unencapsulated DU.
- Do not allow DU fragments or dust to come in contact with your body. Wear personal protective gear. At a minimum, roll sleeves down, wear gloves, and tape all openings.

TRAINING MATERIALS:

- Readiness Training Package C7, *Radiation Hazards and Protective Actions*, on the AFCESA website at http://www.afcesa.af.mil
- Depleted Uranium Awareness video PIN #710493 at http://www.tobyhanna.army.mil/jvia/jvia.html
- AFH 32-4014v4, *USAF Ability to Survive and Operate Procedures in a Nuclear Biological and Chemical Environment*
- AFMAN 32-4005, *Personnel Protection and Attack Actions*

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